DETAILED ACTION

Response to Amendment

1. The proposed amendments do not place the application in better form for appeal by materially reducing or simplifying the issues for appeal.

Response to Arguments

2. Applicant's arguments filed December 8, 2010 have been fully considered but they are not persuasive.

Regarding applicants' argument that Nagayama et al. does not disclose a discharge circuit printed on one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell, the limitations "printed on one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell," which are directed to method of making a bipolar electrode, it is noted that said limitations are not given patentable weight in the product claims. Even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself and does not depend on its method of production. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same or obvious as the product of the prior art, the claim is unpatentable even though the prior art product was made by a different process.). See MPEP § 2113 and § 2114. The limitation, a discharge circuit printed on one or more of the positive-electrode layer, the negative

electrode layer and electrolyte layer, is construed as a discharge circuit provided on the same layer as a positive-electrode layer, negative electrode layer or electrolyte layer. Nagayama et al. discloses a discharge circuit (50) provided on the same layer as a positive-electrode layer (28), negative electrode layer (26) or electrolyte layer (27) within each electric cell (40, Fig. 4). Therefore, Nagayama et al. discloses a discharge circuit printed one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell.

Regarding applicants' argument that Nagayama discloses a diode forming region 24 intended to form a group of diodes is disposed on one side of each of current collecting bodies, Nagayama discloses that the group of diodes (50; i.e., discharge circuit) are on the same layer as a positive-electrode layer (28), negative electrode layer (26) or electrolyte layer (27, Fig. 4). Nagayama discloses a discharging circuit (50) printed on one or more of the positive-electrode layer (28, Fig. 10) and the electrolyte layer (27, Figs. 4 and 9). If the Figures of 4 and 9 are inverted, the diode elements (35; i.e., discharge circuit) are formed within the negative electrode layer (26) and the electrolyte layer (27) and formed (i.e., printed) on the positive electrode layer (28). If the Figure of 10 is inverted, the diode elements (35; i.e., discharge circuit), the diode elements (35; i.e., discharge circuit) are formed within the negative electrode layer (26) and formed (i.e., printed) on the electrolyte layer and the positive electrode layer (28). Further, it is noted that the features upon which applicant relies (i.e., the discharge circuit does not contact the collector) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicants' argument that the diode is formed on the collector, not on the negative electrode layer 26, it is noted that the features upon which applicant relies (i.e., the discharge circuit does not contact the collector) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Nagayama discloses that an electrolyte layer is interposed between the current collecting bodies (Figs 3 and 8, [0049]). Thus, the diode is formed on the collector and the electrolyte layer. Therefore, Nagayama discloses a discharge circuit printed one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell.

Regarding applicants' argument that diodes never contact one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each cell as they are clearly separated by sealing part 25, it is noted that the features upon which applicant relies (i.e., the discharge circuit contacts one or more of the positive-electrode layer, the negative electrode layer and the electrolyte layer within each cell) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The negative electrode layer, positive electrode layer and electrolyte layer can comprise other materials beside the negative electrode active material, positive electrode active material and ion conduction material as detailed in the instant specification. The sealing part 25 is a component of the negative electrode layer, positive electrode layer and the electrolyte layer. Therefore, Nagayama discloses a discharge circuit printed one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell as detailed above.

Regarding applicants' argument that Nagayama does not disclose that diodes are formed on the same layer as the positive electrode layer, the Examiner agrees that Nagayama does not disclose that the diodes are formed on the same layer as the positive electrode layer. However, Nagayama does disclose that the diodes (35) are formed on the same layer as the negative electrode layer (26, Figs. 4, 9 and 10) and the electrolyte layer (27, Figs. 4 and 10). Thus, the diode is formed on the electrolyte layer (27, Fig. 9) and the positive electrode layer (28, Figs. 4 and 10). Therefore, Nagayama discloses a discharge circuit printed one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell.

Regarding applicants' argument that the positive and negative electrode layers are formed on the collector, a discharge circuit can be printed on the electrolyte layer and contact the collector. If a discharge circuit is printed on the electrolyte layer, it is formed within the negative electrode layer or positive electrode layer. As the claim recites a collector having a positive-electrode layer on one surface and a negative-electrode layer on an opposing surface, a discharge circuit printed within the negative-electrode layer or the positive-electrode layer would contact the collector. Therefore, the claim language does not preclude the discharge circuit from contacting the collector.

Regarding applicants' argument that the collector is not part of either the positive or negative electrode layer, a discharge circuit can be printed on the electrolyte layer and contact the collector. If a discharge circuit is printed on the electrolyte layer, it is formed within the negative electrode layer or positive electrode layer. As the claim recites a collector having a positive-electrode layer on one surface and a negative-electrode layer on an opposing surface, a discharge circuit printed within the negative-electrode layer or the positive-electrode layer would

contact the collector. Therefore, the claim language does not preclude the discharge circuit from contacting the collector.

Regarding applicants' argument Nagayama discloses that the negative pole layers are formed on the one side of the current collecting body and positive pole layers are formed on the other side of the current collecting bodies, the cited language in Nagayama is an explicit disclosure of a bipolar electrode of the instant claims. Therefore, the cited language does not differentiate Nagayama from the instant claims.

Regarding applicants' argument that Nagayama discloses that the group of diodes is also formed on these current collecting bodies, Nagayama also discloses that an electrolyte layer is interposed between the current collecting bodies (Figs 3 and 8, [0049]). Thus, the group of diodes formed on these current collecting bodies is also formed on the electrolyte layer. Therefore, Nagayama discloses a discharge circuit printed one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell.

Regarding applicants' argument that the diodes are not formed on the positive and negative pole layers, Nagayama discloses a discharging circuit (50) printed on one or more of the positive-electrode layer (28, Fig. 10) and the electrolyte layer (27, Figs. 4 and 9) as detailed above. Further, it is noted that the features upon which applicant relies (i.e., the discharge circuit is formed only on the negative electrode layer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicants' argument that the applicants clearly disclose the claimed subject matter in Fig. 2, where the discharge circuit 210 is shown on the electrolyte layer 208 with the

collector layer 214 shown separated from the discharge circuit 210 by yet another layer, it is noted that the features upon which applicant relies (i.e., the discharge circuit is separated from the collector layer by another layer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). A discharge circuit can be printed on the electrolyte layer and contact the collector. If a discharge circuit is printed on the electrolyte layer, it is formed within the negative electrode layer or positive electrode layer. As the claim recites a collector having a positive-electrode layer on one surface and a negative-electrode layer on an opposing surface, a discharge circuit printed within the negative-electrode layer or the positive-electrode layer would contact the collector. Therefore, the claim language does not preclude the discharge circuit from contacting the collector.

Regarding applicants' argument that Nagayama clearly fails to disclose a discharge circuit printed on one or more of the positive electrode layer, the negative electrode layer and electrolyte layer within each cell, the discharge circuit configured within each bipolar electrode to electrically balance charge conditions of adjacent electric cells. Nagayama discloses a discharge circuit printed on one or more of the positive electrode layer, the negative electrode layer and electrolyte layer within each cell, the discharge circuit configured within each bipolar electrode to electrically balance charge conditions of adjacent electric cells as detailed above.

Regarding applicants' argument that claims 1, 13-15 and 17 and claims 3, 5, 11, 12, 19 and 20 by their dependency are not anticipated by Nagayama et al., Nagayama et al. anticipates claim 1 as detailed above and thus anticipates claims 13-15 and 17. Claims 3, 5, 11, 12, 19 and

20 are also anticipated by Nagayama et al. because applicants' arguments regarding claim 1 are not persuasive.

Regarding applicants' argument that Einthoven et al. does not teach or suggest a discharge circuit printed on one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell, note that while Einthoven et al. does not disclose all the features of the present claimed invention, Einthoven et al. is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, In re Nievelt, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), In re Keller 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely doping concentration and thickness of a depletion layer, and in combination with the primary reference, discloses the presently claimed invention.

Regarding applicants' argument that Horie et al. does not teach or suggest a discharge circuit printed on one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell, note that while Horie et al. does not disclose all the features of the present claimed invention, Horie et al. is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, In re Nievelt, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), In re Keller 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely a discharge circuit including a luminescent device, and in combination with the primary reference, discloses the presently claimed invention.

Regarding applicants' argument that Hisamitsu et al. does not disclose a discharge circuit printed on one or more of the positive-electrode layer, the negative electrode layer and

electrolyte layer within each electric cell, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Regarding applicants' argument that Nakanaga et al. discloses that a reverse current preventing diode is laminated on a stainless steel plate 4, which is pressed onto the foil that is brought in close contact with the positive electrode layer 7 with a vacuum, the reverse current preventing diode (3) of Nakanaga et al. is not disclosed as the discharge circuit of the instant claims. The zener diode (9) of Nakanaga et al. is the cited as the discharge circuit of the instant claims. The cited language is referring to a first embodiment of Nakanaga et al. as shown in Fig. 1. In another embodiments shown in Fig. 4, Nakanaga et al. discloses a zener diode (9; i.e., discharge circuit) formed within one or more of the positive-electrode layer (7), the negative electrode (5) and the electrolyte layer (6) within each electric cell (Fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the bipolar battery cell of Hisamitsu et al. with a discharge circuit within one or more of the positive electrode layer, negative electrode layer and electrolyte layer as taught by Nakanaga et al. to provide a discharge circuit that is a single piece unit thereby allowing for ease of assembly of the battery cell.

Regarding applicants' argument that the abstract and accompanying drawing are very clear that the circuit is between a metal plate 4 and foil 5, not on the positive electrode layer 7, the electrolyte layer 6 or the negative electrolyte layer 3, the zener diode (9) is equivalent to the discharge circuit of the instant claims. Element (5) is a lithium foil (i.e., negative electrode).

Element (3) is a diode. There is not element interposed between a metal plate 4 and the foil 5. Therefore, it is not very clear that the abstract and accompanying drawing that the circuit is between a metal plate 4 and foil 5.

Regarding applicants' argument that the Examiner does not address this in his response to arguments but only repeats the claim language, the Examiner did address this in his response to arguments by repeating the claim language and showing that the zener diode (9, Fig. 4) disclosed the discharge circuit of the instant claims. The applicants' arguments were directed to the diode (3, Figs. 1 and 4), which the Examiner did not equate to the discharge circuit of the instant claims. Nakanaga et al. discloses a zener diode (9) formed within a positive electrode layer (7), electrolyte layer (6) and negative electrode layer (5). Thus, the zener diode (9) is formed on the electrolyte layer (6) and the negative electrode layer (5). The claim language does not preclude the discharge circuit from contacting a collector as detailed above. Therefore, Nakanaga et al. discloses a discharge circuit printed on an electrolyte layer and a negative electrode layer.

Regarding applicants' argument that claims 1, 13-15 and 17 and claims 3, 5, 11, 12, 19 and 20 by their dependency are allowable, claim 1 is not allowable as detailed above.

Regarding applicants' argument that Einthoven et al. does not teach or suggest a discharge circuit printed on one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell, note that while Einthoven et al. does not disclose all the features of the present claimed invention, Einthoven et al. is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, In re Nievelt, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), In re Keller 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference

teaches a certain concept, namely doping concentration and thickness of a depletion layer, and in combination with the primary reference, discloses the presently claimed invention.

Regarding applicants' argument that Horie et al. does not teach or suggest a discharge circuit printed on one or more of the positive-electrode layer, the negative electrode layer and electrolyte layer within each electric cell, note that while Horie et al. does not disclose all the features of the present claimed invention, Horie et al. is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, In re Nievelt, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), In re Keller 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely a discharge circuit including a luminescent device, and in combination with the primary reference, discloses the presently claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Cullen, Ph.D. whose telephone number is 571-270-1251. The examiner can normally be reached on Monday thru Thursday 6:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on 571-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. P. C./
Examiner, Art Unit 1725